IN THE CLAIMS

1. (currently amended) A parallel arithmetic apparatus, comprising:

a plurality of pairs of devices, each pair including recording means for recording arithmetic elements to be operated on and operating means for performing sum-of-products operations on the arithmetic elements recorded in the recording means; and

selecting means having an input from each of the recording means and an output to only one of the operating means, the selecting means ~~for~~ inputting the arithmetic elements recorded in a selected one of the recording means ~~of a selected pair of devices~~ to the one operating means ~~of the selected pair of devices, the selecting means being inserted only between the recording means and the operating means in a first pair of devices and not between the recording means and the operating means in any other pair of devices~~.

2. (currently amended) The parallel arithmetic apparatus according to claim 1, wherein the one operating means is in a first pair of devices, the parallel arithmetic apparatus further comprising:

temporary recording means inserted between the recording means and the operating means in a second pair of devices different from the first pair of devices for temporarily recording the arithmetic elements recorded in the recording means of the second pair of devices; wherein

the selecting means is adapted to input the arithmetic elements recorded in the temporary recording means to the one operating means ~~of the second pair of devices when the second pair of devices is the selected pair of devices~~.

3. (currently amended) The parallel arithmetic apparatus according to claim 1, wherein

the recording means of each pair of devices records a first arithmetic element to be subjected to a matrix operation, and a second arithmetic element to be subjected to an inner product operation, and

the selecting means is adapted, during the matrix operation, to input the first arithmetic element from the selected recording means ~~of the selected pair of devices~~ to the one operating means ~~of the selected pair of devices~~ and, during the inner product operation, to select the recording means of each pair of devices one by one in a round-robin fashion and input the second arithmetic element from each recording means to the one operating means ~~of the selected pair of devices~~.

4. (previously presented) The parallel arithmetic apparatus according to claim 1, wherein, for each pair of devices, the operating means in the pair of devices performs an operation with a content independently assigned to the pair of devices using the arithmetic elements recorded in the recording means of the pair of devices.

5. (previously presented) The parallel arithmetic apparatus according to claim 4, wherein the operation is an operation associated with any one of four-dimensional coordinate components.

6. (currently amended) A parallel arithmetic apparatus that selectively performs a matrix operation and a vector inner product operation, comprising:

a plurality of recording means for recording, during the matrix operation, a first arithmetic element to be subjected to the matrix operation and for recording, during the inner product operation, a second arithmetic element to be subjected to the inner product operation;

a plurality of operating means in one-to-one correspondence with the plurality of recording means to form a plurality of device pairs, the plurality of operating means performing, during the matrix operation, a sum-of-products operation in which the operating means in each device pair inputs the first arithmetic element recorded in the recording means of the device pair, and performing, during the inner product operation, a sum-of-products operation in which a predetermined one of the plurality of operating means inputs the second arithmetic element recorded in each of the recording means; and

selecting means having an input from each of the recording means and an output to the predetermined operating means, the selecting means for selecting, during the matrix operation, a first recording means corresponding to the predetermined operating means and inputting a first arithmetic element recorded in the first recording means to the predetermined operating means, and for selecting, during the inner product operation, the plurality of recording means one by one in a round-robin fashion and inputting the second arithmetic element recorded in each of the recording means to the predetermined operating means~~, the selecting means being inserted only between the recording means and the operating means in a single device~~

~~pair and not between the recording means and the operating means in any other pair~~.

7. (previously presented) The parallel arithmetic apparatus according to claim 6, wherein the first and second arithmetic elements are expressed with a floating point number and the plurality of operating means are constructed to perform the sum-of-products operation on floating point numbers.

8. (currently amended) An entertainment apparatus that performs image processing on an entertainment image by performing a matrix operation with regard to coordinates expressing a position and a shape of an object and performing an inner product operation with regard to vectors used to express an image of the object, the apparatus comprising:

a plurality of registers that record, during the matrix operation, a first arithmetic element subjected to the matrix operation, and that record, during the inner product operation, a second arithmetic element subjected to the inner product operation;

a plurality of sum-of-products operators forming a one-to-one correspondence with the plurality of registers that perform, during the matrix operation, a sum-of-products operation in which each sum-of-products operator inputs the first arithmetic element recorded in the corresponding register, and that perform, during the inner product operation, a sum-of-products operation in which a predetermined one of the sum-of-products operators inputs the second arithmetic element recorded in each of the registers; and

a single selector having an input from each of the registers and an output to the predetermined ~~inserted between~~

~~only one register and its corresponding~~ sum-of-products operator that selects, during the matrix operation, a register corresponding to the predetermined sum-of-products operator and inputs the first arithmetic element recorded in the selected register to the predetermined sum-of-products operator, and that selects, during the inner product operation, the plurality of registers one by one in a round-robin fashion and inputs, for each of the registers, the second arithmetic element recorded in the register to the predetermined sum-of-products operator.

9. (currently amended) An entertainment apparatus that performs image processing on an entertainment image by carrying out a matrix operation between a matrix and coordinate values to perform a coordinate transformation of coordinates expressing a position and a shape of an object and carrying out an inner product operation between a normal vector oriented in a direction normal to the surface of the object and a position vector of a light source to determine the display mode of the surface of the object, the apparatus comprising:

a plurality of registers that record the coordinate values and component values corresponding to any one row of the matrix during the matrix operation, and that record the normal vector and component values corresponding to any one component of the position vector during the inner product operation;

a plurality of sum-of-products operators forming a one-to-one correspondence with the plurality of registers that carry out a sum-of-products operation during the matrix operation in which each sum-of-products operator inputs the coordinate values recorded in the corresponding register and the component values corresponding to the one row of the matrix, and that carry out a sum-of-products operation during the inner product operation in which a predetermined one of the

sum-of-products operators inputs the normal vector recorded in each of the registers and component values of the position vector;

a single selector having an input from each of the registers and an output to the predetermined ~~inserted between only one register and its corresponding~~ sum-of-products operator that selects, during the matrix operation, a register corresponding to the predetermined sum-of-products operator and inputs the coordinate value recorded in the selected register and the component values corresponding to the one row of the matrix to the predetermined sum-of-products operator, and that selects, during the inner product operation, the plurality of registers one by one in a round-robin fashion and inputs, for each of the registers, component values of the normal vector and the position vector recorded in the register to the predetermined sum-of-product operator.

10. (canceled)

11. (canceled)

12. (canceled)

13. (canceled)